

Request for Participation Summer 2005 Demand Shifting with Thermal Mass

California is embarking on a new era of dynamic pricing with the introduction of Critical Peak Pricing. This new tariff was designed to produce incentives to change building operations and manage peak-time energy use on days when the utility grid is constrained. Building owners and facility managers need to evaluate various demand shedding strategies on their sites to reduce peak-period electricity use.

Is your facility ready for using pre-cooling to shed peak demand?

The idea of pre-cooling and demand limiting is to pre-cool buildings at night or in the morning during off-peak hours, storing cooling in the building thermal mass and thereby reducing cooling loads during the peak periods. Savings are achieved by reducing on-peak energy and demand charges. The potential for utilizing building thermal mass for load shifting and peak demand reduction has been demonstrated in a number of simulation, laboratory, and field studies.

To know whether your facility is suitable for passive demand shifting using building thermal mass, the 2005 summer program with Automated Critical Peak Pricing (CPP) test is a low risk way to get prepared.

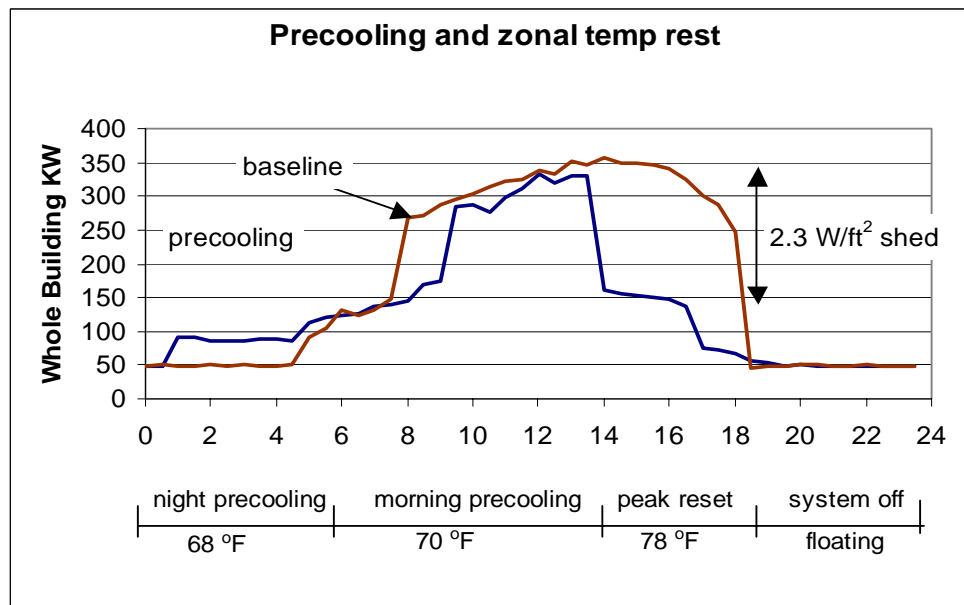


Figure 1. Sample results of the previous precooling tests

Technical assistance available

LBNL will conduct two case studies of preliminary assessment of the savings from pre-cooling in two commercial buildings during the summer, 2005. Researchers at the Lawrence Berkeley National Lab (LBNL) will provide guidance to your staff in:

- Develop the pre-cooling and demand limiting strategy and assessing its impacts
- Set up the monitoring plan, install additional sensors and conduct the tests with you.
- Evaluate economic savings under CPP programs.

Site requirements

The buildings to be selected will have of a medium to lightweight mass structure in a hot (inland) climate. LBNL will first consider but not limited to buildings participating in the PG&E Automated Critical Peak Pricing Test. The ideal building to conduct case study should be:

- Located in hot climate zone
- With innovative owners and motivated operators
- With properly functioning HVAC system, ideally commissioned recently.
- With medium to light-weight mass structure, buildings with a small window to wall ratios and high accessible building mass be preferable
- With conventional VAV system equipped with central EMCS system

Implementation and Customer requirements

The case study will be conducted in the following steps

- Collect general building information and determine the feasibility of the pre-cooling.
- Working with building owners, develop pre-cooling, demand limiting strategies and data trending requirements.
- Install sensors and data loggers in the building and collect baseline performance data
- Implement pre-cooling and demand limiting strategy and collect performance data
- Analyze the data and determine economic savings

Schedule

- Site recruitment and selection before August 1st 2005
- System development in August 2005
- Conduct tests through October 2005

To sign-up and/or request more information, please contact

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This project will be conducted through the **PIER Demand Response Research Center** (see drcc.lbl.gov) with funding from **CEC**.